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EXAMINER

TANG, KUO LIANG J

ART UNIT	PAPER NUMBER
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2122

8

DATE MAILED: 11/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/759,697

Applicant(s)

HALSTEAD, ET AL.

Examiner

Kuo-Liang J. Tang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2-4, 6-7. 6) ☐ Other: _____

Specification

1. The abstract of the disclosure is objected to because the abstract of the disclosure exceeds 150 words in length. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities:

Page 1, Lines 14-15, "[incr Tk]" is not referenced properly.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berry et al. US Patent No. 5,732,271 (art of record, hereinafter Berry), in view of Hostetter et al., "Curl: A Gentle Slope Language for the Web," World Wide Web Journal, **Spring, 1997**, (art of record, hereinafter Hostetter.)

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4. *As Per Claim 1*, Berry discloses a method and system which provides a prototypical object (object /data structure) that can be copied to create a derived object (See abstract) for processing data comprising:

- *defining a class which supports an option data structure having, in instances of the class, references to option values without preallocation of memory space for the full option values, the option data structure including a type description of the option values;* (see Column 2, Lines 37-41, “The foregoing objects are achieved by a method and system which provides a prototypical object which can be copied to create a derived object. **A derived object can contain attribute values or it can hold references to prototypical objects.**”) and (see Column 3, Lines 43-45, “A prototypical object is an instance of a class. That is, the prototypical object has the **structure** and behavior defined by the class.”) and (see Column 3, Lines 51-54, “For example, button object 220 can contain attributes such as background color, button action and size. Rectangle object 214, on the other hand, can contain attributes such as fill color, contents, border type and size.”). The Examiner interprets only attribute values contained in the derived object need memory space preallocated; for those reference it holds do not require memory preallocation (already allocated by the prototypical objects) and (see Column 2, Lines 41-50, “If a required value is not held by a prototypical object, the present invention discloses a scheme by which the object **searches up an object hierarchy to find the required attribute**. In addition, each object can register interests in prototypical objects. If an attribute of a prototypical object changes, the prototypical object **informs** all registered objects of the change. At runtime, the prototypical object becomes a master object whose attribute values can be changed by the user. Changes in master object attributes are **propagated** to all registered derived objects.”).

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Berry does not explicitly disclose his teaching for compiling environment. However, Hostetter teaches *during compilation, using the type description in the option data structure to process an operation on the option value.* (for example, see Page 1, Lines 22-29,”

Programming complex operations. Other components of an interactive document may require more sophisticated mechanisms than are provided by the interface toolkit. These components can also be developed using Curl since, at its heart, Curl is really an object-oriented programming language. Curl expressions, class definitions and procedure definitions embedded in the web document are securely compiled to native code by the built-in on-the-fly **compiler** and then executed without the need for any sort of interpreter. Curl provides many of the features of a modern object-oriented programming language: multiple inheritance, extensible syntax, a strong type system that includes a dynamic "any" type, safe execution through encapsulation of user code and extensive checking performed both at compile and run time. Almost all of the Curl system and compiler are written in Curl. ") and (see page 7, lines 11-12, "**Lexically-scoped environment.** Curl provides a structured name space whose bindings include variables, constants, **types**, and **compilation** hooks for arbitrary syntactic forms.""). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to comprise a compiler. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use Curl modern object-oriented programming feature (object structure) to compile to native code and execute without the need for any sort of interpreter.

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5. *As Per Claim 2*, the rejection of claims 1 is incorporated respectively and further Berry discloses

- the option data structure identifies change handler code that is executed when an option value changes. (see Column 2, Lines 41-50, “If a required value is not held by a prototypical object, the present invention discloses a scheme by which the object **searches up an object hierarchy to find the required attribute**. In addition, each object can register interests in prototypical objects. If an attribute of a prototypical object changes, the prototypical object **informs** all registered objects of the change. At runtime, the prototypical object becomes a master object whose attribute values can be changed by the user. Changes in master object attributes are **propagated** to all registered derived objects.”).

6. *As Per Claim 3*, the rejection of claims 2 is incorporated and further Berry discloses

-change handler code for one option is defined in different classes within a class inheritance hierarchy and the change handler code from each class is executed when the option value changes. (see Column 2, Lines 41-50, “If a required value is not held by a prototypical object, the present invention discloses a scheme by which the object searches up an object **hierarchy** to find the required attribute. In addition, each object can register interests in prototypical objects. If an attribute of a prototypical object changes, the prototypical object **informs** all registered objects of the change. **At runtime**, the prototypical object becomes a master object whose attribute values can be changed by the user. Changes in master object attributes are **propagated** to all registered derived objects.”) and (see Column 4, Lines 22-31, “FIG. 3 depicts top card 310 of the attribute sheet for button object 220. Button 220 has one

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attribute: background color. This attribute is indicated by tab 312 associated with the top card 310. To change the background color for button object 220 the developer selects tab 312 on attribute sheet 310, then the developers selects a color from the displayed palette of rectangle objects 316. After a color is selected, the developer can edit the color by pressing button 318, select the color by closing the attribute sheet using window button 324 or cancel the selection by pressing button 320.”).

7. *As Per Claim 4*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose getting option value. However, Hostetter teaches *an option data structure includes a default value, the method further comprising, in a get operation to an instance of the class, if an option value which applies to the instance has been set, getting the set option value and, if a value which applies has not been set, getting the default value for the class.* (see Section3, Page 4, Lines 1-2, “The screen shot above reflects the fact the user has selected something **besides** the **default** color (red) and quantity (0).”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to get option value. The modification would have been obvious because one of ordinary skill in the art would have been motivated to incorporate a dynamic object with a simple mechanism for propagating changes in its value to other dynamic objects that depend on first object's value and to customize the object using option value.

8. *As Per Claim 5*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose encoding option operation. However, Hostetter teaches

-defining a first class with a first option data structure of a first form which supports, in instances of the class, references to option values without preallocation of memory space for the full option values; (see Page 4, Figure 2, item hbox)

-defining a second class with a second option data structure of a second form which supports, in instances of the second class, references to option values without preallocation of memory space for the full option values, the second form being different from the first form; (see Page 4, Figure 2, item vbox;) and

-during compilation, encoding an option operation as a method call to an object of the first class and to an object of the second class without regard to the form of the option data structure supported by the class. (see Page 4, Figure 2, item hbox and item vbox; and Page 3,

Line 20-24, "Since the values for **color** and **quantity** are Dynamic objects, the last line of the display changes automatically as the user manipulates the color and quantity controls. A

Dynamic object incorporates a simple mechanism for propagating changes in its value to other dynamic objects that depend on first object's value. More sophisticated propagation rules could be supplied by the user by creating a new class of objects derived from Dynamic objects that have a different "propagate" method."), and (see Page 9, Lines 20-22, "Hboxes and vboxes.

These are one-dimensional formatters that create simple horizontal or vertical arrangements of their children, lining up their baselines or margins. As in TeX, the relative allocation of white space is controlled by the elasticity of any glue objects that have been added as children.").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to encoding option operation. The modification would have been obvious because one of ordinary skill in the art

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would have been motivated to display changes automatically as the user manipulates the color and quantity controls.

9. *As Per Claim 6*, the rejection of claims 1 is incorporated and further Berry discloses **-notifying objects of a change in an option value through a change handler identified by an option binding, the option binding being located by first searching a mapping data structure for a previously computed mapping to the option binding and, if no mapping was previously computed, by then computing the mapping to the option binding and storing the mapping in the mapping data structure.** (see Column 2, Lines 41-50, “If a required value is not held by a prototypical object, the present invention discloses a scheme by which the object **searches up an object hierarchy to find the required attribute.** In addition, each object can register interests in prototypical objects. If an attribute of a prototypical object changes, the prototypical object **informs** all registered objects of the change. At runtime, the prototypical object becomes a master object whose attribute values can be changed by the user. Changes in master object attributes are **propagated** to all registered derived objects.”).

10. *As Per Claim 7*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose option list. However, Hostetter teaches **the option data structure comprises a linked list of option items having option values.** (see Section 4.3, Page 10, Lines 21-22, “Much of the flexibility of boxes comes from the use of properties to control the rendering of primitive objects. A property is a (name,value) binding and each Graphic object has an associated **list** of properties.”). Therefore, it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to incorporate the teaching of Hostetter into the system of Berry, to comprise option list. The modification would have been obvious because one of ordinary skill in the art would have been motivated to implement properties in a dynamically bound environment using a deep binding mechanism and to facilitate the selection of options using option list.

11. *As Per Claim 8*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose a nonlocal option value applies to other objects in a nonlocal option hierarchy. However, Hostetter teaches *a nonlocal option value applies to other objects in a nonlocal option hierarchy*. ((see Section3, Page 4, Lines 1-2, “The screen shot above reflects the fact the user has selected something besides the default **color** (red) and quantity (0).”). **Color** is a nonlocal option because all text in a given document is usually the same color. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to comprise a nonlocal option value applies to other objects in a nonlocal option hierarchy. The modification would have been obvious because one of ordinary skill in the art would have been motivated to implement properties in a dynamically bound environment using a deep binding mechanism.

12. *As Per Claim 9*, the rejection of claims 8 is incorporated and further Berry does not explicitly disclose the nonlocal option hierarchy is a graphical hierarchy. However, Hostetter teaches *the nonlocal option hierarchy is a graphical hierarchy*. (see Section3, Page 4, Lines 1-2, “The screen shot above reflects the fact the user has selected something besides the default **color** (red) and quantity (0).”) and (see Section4.3, Page 9, Lines 34-35, “text. Properties control

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the **color**, size and font family as well as indicating whether the text should be bold or italic.”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to comprise the nonlocal option hierarchy is a graphical hierarchy. The modification would have been obvious because one of ordinary skill in the art would have been motivated to represent a graphic image as a hierarchical tree of Graphic objects (Leaves of the tree are primitive Graphic objects which know how to draw themselves, usually after looking up the values of various properties).

13. *As Per Claim 10*, the rejection of claims 1 is incorporated respectively and further Berry discloses :

- the class which supports the option data structure includes defined fields to support values in preallocated memory space. (see Column 2, Lines 37-41, “The foregoing objects are achieved by a method and system which provides a prototypical object which can be copied to create a derived object. **A derived object can contain attribute values** or it can hold references to prototypical objects.”) and (see Column 3, Lines 51-54, “For example, button object 220 can contain attributes such as background color, button action and size. Rectangle object 214, on the other hand, can contain attributes such as fill color, contents, border type and size.”).

14. *As Per Claim 11*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose a value to be set in a set operation. However, Hostetter teaches *the type description is used to check the declared type of a value to be set in a set operation.* (see Page 3, Lines 10-12, “In this example, the bold operator treats its arguments as a sequence of Graphic

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objects (in this case simple characters) to be displayed with the 'bold property **set** to true, while the + operator parses the remaining text as a sequence of subexpressions to be evaluated and then summed.”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to set a value in a set operation. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use a set operation to set the option value.

15. *As Per Claim 12*, the rejection of claims 1 is incorporated and further Berry does not explicitly disclose a value obtained in a get operation. However, Hostetter teaches *the type description is used to check the legality of an operation to be performed on a value obtained in a get operation.* (see Page 4, Lines 12-15, “Environments completely encapsulate a document, making it easy to implement various security, storage management and clean-up policies. Environments are themselves objects with instance variables and methods derived from the top-level definitions in the source documents. Thus ballco.get-price is a reference to the get-price procedure defined in BallCo's "prices.curl" file.”) and (see Page 7, Lines 3-5, “**Strong typing.** Every variable and value may be declared and **type-checked** at compile time. Strong typing not only allows many programming errors to be caught at compile time but gives the Curl compiler the extra information it needs to produce efficient native code implementations.”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to obtain a value in a get operation. The modification would have been obvious because one of ordinary skill in the art would have been motivated to use a get operation to get the option value.

16. **Claim 13** is the system claim corresponding to the method claim 1 and is rejected under the same reason set forth in connection of the rejection of claim 1.

17. **As Per Claim 14**, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 2.

18. **As Per Claim 15**, the rejection of claims 14 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 3.

19. **As Per Claim 16**, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 4.

20. **As Per Claim 17**, the rejection of claims 13 is incorporated and further Berry does not explicitly disclose plural classes having data structures of different forms. However, Hostetter teaches *plural classes having data structures of different forms, and a compiler which encodes an option operation as a method call to an instance object of one of the classes without regard to the form of the option data structure supported by the class.* (see Page 4, Figure 2, item hbox and item vbox;) and (see Page 4, Figure 2, item hbox and item vbox; and Page 3, Line 20-24, “Since the values for **color** and **quantity** are Dynamic objects, the last line of the display changes automatically as the user manipulates the color and quantity controls. A Dynamic object incorporates a simple mechanism for propagating changes in its value to other dynamic objects

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that depend on first object's value. More sophisticated propagation rules could be supplied by the user by creating a new class of objects derived from Dynamic objects that have a different "propagate" method.”), and (see Page 9, Lines 20-22, “Hboxes and vboxes. These are one-dimensional formatters that create simple horizontal or vertical arrangements of their children, lining up their baselines or margins. As in TeX, the relative allocation of white space is controlled by the elasticity of any glue objects that have been added as children.”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Hostetter into the system of Berry, to comprise plural classes having data structures of different forms. The modification would have been obvious because one of ordinary skill in the art would have been motivated to display changes automatically as the user manipulates the color and quantity controls.

21. *As Per Claim 18*, the rejection of claims 13 is incorporated respectively and further Berry discloses :

-change handlers which notify objects of a change in an option value and a mapping data structure which maps an option name and class to an option binding which identifies a change handler. (see Column 2, Lines 41-50, “If a required value is not held by a prototypical object, the present invention discloses a scheme by which the object **searches up an object hierarchy to find the required attribute**. In addition, each object can register interests in prototypical objects. If an attribute of a prototypical object changes, the prototypical object **informs** all registered objects of the change. At runtime, the prototypical object becomes a

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master object whose attribute values can be changed by the user. Changes in master object attributes are **propagated** to all registered derived objects.”).

22. *As Per Claim 19*, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 7.

23. *As Per Claim 20*, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 8.

24. *As Per Claim 21*, the rejection of claims 20 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 9.

25. *As Per Claim 22*, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 10.

26. *As Per Claim 23*, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 11.

27. *As Per Claim 24*, the rejection of claims 13 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 12.

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28. ***Per Claim 25*** is the system claim corresponding to the method claim 13 and is rejected under the same reason set forth in connection of the rejection of claim 13.

29. ***Per Claim 26*** is the computer-readable medium claim corresponding to the method claim 1 and is rejected under the same reason set forth in connection of the rejection of claim 1, further Berry discloses computer-readable medium. (see Column 3, Lines 22-32, "The workstation shown in FIG. 1 includes random access memory ("RAM") 14, read only memory ("ROM") 16, and input/output ("I/O") adapter 18 for connecting peripheral devices such as **disk units 20** and tape drives 40 to bus 12, user interface adapter 222 for connecting keyboard 24, mouse 26, speaker 28, microphone 32, and/or other user interface devices such as a touch screen device (not shown) to bus 12, communication adapter 34 for connecting the workstation to a data processing network, and display adapter 36 for connecting bus 12 to display device 38.").

30. ***As Per Claim 27***, the rejection of claims 26 is incorporated and is rejected under the same reason set forth in connection of the rejection of claim 19.

31. ***Claim 28*** is the computer data signal claim corresponding to the method claim 1 and is rejected under the same reason set forth in connection of the rejection of claim 1.

Conclusion

32. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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33. **Title:** "FAQ's, GUI Toolkit", Curl Corporation Web Site

(http://www.curl.com/developers/faq_gui.php?), 1998-2003.

34. **Title:** Method and apparatus of translating and executing native code in a virtual machine environment. **US PUB NO:** 2001/0005886 A1.

35. **Title:** System, method and medium for managing information. **USPN:** 6,119,157.

36. **Title:** Method and apparatus for dynamic selection of instructions for compiling using tags. **USPN:** 6,305,012.

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang J Tang whose telephone number is 703-305-4866.

The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on 703-305-4552.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306.

KLT / *KLT*

November 14, 2003


TUAN DAM
SUPERVISORY PATENT EXAMINER